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ABSTRACT

This short, narrative pamphlet on wood processing accompanies the appropriate grade level curriculum guide. (BP)

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An Improvement on Mother Nature's Work

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Grade 6

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PROJECT COULD

CAREER ORIENTATION UTILIZING LANGUAGE DEVELOPMENT

A PACE PROJECT

Elementary and Secondary Education Act of 1965

Project COULD was developed as a means of building skills, knowledges, and attitudes upon elementary children's previously acquired backgrounds. [illegible] language heard most frequently at home and in the immediate environment.

A series of units of instruction were developed from the concepts and vocabulary of the industries indigenous to Coos County. The intention was to promote vocational awareness, exploration and language development for the students in grades 3 through 8.

Materials prepared by Project COULD are available from the IMC of Coos County Intermediate Education District, 2405 Colorado Street, North Bend, Oregon, 97459.

Bob was excited about their new house. The family had purchased the lot on the lake several years ago. Now they were ready to actually start construction.

Bob would have his own room. Sharing with Bill was always a problem when a friend came to play. One of the boys always got mad!

And they would have a family room big enough for a pool table and a small area off the laundry room for a darkroom. Bill already had learned some of Dad's camera hobby and Bob was anxious to learn film developing.

The architect's plans were complete. Mr. Brown, the contractor, agreed to let the family help in many ways on the construction to save some money on the cost of the house.

The first day the contractor was on the job the whole family turned out to watch. "We'll have our own family groundbreaking," father said. "But we must be careful to stay out of the way."

Mr. Brown greeted them warmly and chuckled when they took pictures of each one turning over a shovel of dirt. "I had a question about your plans. The architect specifies exterior supports of lumber that has been treated for resistance against moisture, termites and fire. We can get this, but it will add about $50 to the cost."

Bob's dad was quick to respond. "Yes. We requested that. Our insurance agent said we would get better rates. In the long run we will save far more than the $50."

"I'll run down to the lumber yard and pick that up. Better take the plans along, because they need to be cut to order the way the lumber will be used for the pressure treatment to be adequate. Would you like to ride along,

Bob?"

Bob and Mr. Brown pulled into the lumber yard. "There's the yard foreman. We better talk to him," Mr. Brown said. "We'll need these pilings tomorrow and he controls the yard orders and decides what deliveries go out on each truck."

"Hey, Don," Mr. Brown greeted the yard foreman, "I need some treated wood for a new home construction. Any chance I can get it delivered tomorrow?"

"We used to operate our own retort for timber treating, but it wasn't a full time job. When Permawood opened down the road, we made arrangements to have them treat the lumber. If you want to fabricate the pieces now, they could have it ready tomorrow. But I don't have a truck free to run it over," Don said.

"It's not a big order. I think I could run it over in my pickup," Mr. Brown said. The two men looked over the plans while Bob looked at all the kinds of lumber.

Mr. Brown and Bob watched as they took the lumber to the fabricating room. There it was cut into the exact lengths needed. The yard foreman called Permawood to tell them a customer would drop off an order. Don made arrangements for his lumber company to pick up the order for delivery the next day.

Mr. Brown gave the address for Bob's new house to Don. They watched the assembler load the order into Mr. Brown's truck.

It wasn't far to Permawood. On the way Bob asked Mr. Brown how the wood is treated. "It's a pressure process. I'm sure they will let us watch for a few minutes. We can't stay too long or your parents will think we got lost!"

When Mr. Brown pulled into the Permawood plant, he

told the outdoor stacker he was delivering an order. "And I have a young man here that wants to learn a little about treating lumber. May we go watch while you unload this?"

"Let me see if someone is free to go with you," the stacker said. Using his walkie-talkie connection to the office, he soon found someone willing to take a few minutes for a tour.

"Mr. Kirk will meet you at the big loading door," the stacker said as he pointed toward the proper building.

"Wood is attacked by insects, fungi that causes rot, and marine borers, as well as fire and moisture," Mr. Brown explained as they walked across the yard.

"I'm Mr. Kirk," the man said at the door. "Are you writing a report about pressure treating of wood?"

"Oh no," Bob said. "We're building a new house," he explained proudly, "and we're using treated wood so the insurance won't be so high."

"That's one of the new uses for treated wood," Mr. Kirk said. "The railroad actually started the whole process. They found ties were rotting out and needing replacement every three or four years. They have estimated their total savings through the use of pressure-treated wood ties is more than one million dollars a day. Now the ties last 30-40 years."

"Wood is attacked by insects for food and shelter. They are looking for food, air, moisture and heat. By removing any of these elements we found in the timber treating business we could eliminate or retard attack," Mr. Kirk explained as they walked down the hallway. "The easiest solution is to poison the food," he continued.

"This poison is called a preservative and we use

pressure to add the preservative to the wood," Mr. Kirk explained.

"An oily substance is used for preserving wood needed for marine work. Creosote is the most popular. It is almost insoluble in water. For your house lumber we will use a salt preservative that is water soluble. The fire retardant can be added at the same time."

"Do you know anything about the anatomy of wood?" Mr. Kirk asked Bob.

"Not very much. Except to know that the sapwood is alive," Bob responded.

"That's one of the most important principles behind our pressure treatment. Because the sapwood is alive, there is a built-in transportation system to add the poison," Mr. Kirk said.

"Before we can add the poison the lumber must be dry. This cylinder measures the moisture content. Normally lumber contains more moisture than wood fiber so we must be sure this is reduced to below the fiber saturation point for the treatment to be effective," Mr. Kirk explained. "There is a built-in kiln to reduce the moisture if necessary."

"This next machine is called the incisor. See how the oyster knife tooth spreads the fibers apart. It doesn't actually cut the wood but just assists with the penetration," Mr. Kirk said. "It's hard to penetrate wood across the grain, so we incise everything more than three inches thick."

"What is that big cylinder?" Bob asked.

"That is our largest retort, or pressure treatment element. We use it for the full cell method on big pilings needed in the ocean for bridge construction," Mr. Kirk said. "The method is called full cell because

the cells are filled with the preservative. In the empty cell method we first press in air to fill the wood cells, then we fill the cylinder with the preservative. The finished product has only the cell walls saturated. It takes less preservative that way and we have found it is just as effective."

When the pressure reached about 125 pounds of pressure, the pressure treating plant operator turned the valves to shut off the operation and drained the water out of the retort. The carts full of lumber were pulled out of the tube.

"There is one final step after the lumber comes out. It usually needs a final cleaning. We do it with steam, but some companies just run the carts through a high pressure stream of water," Mr. Kirk said.

"What kinds of jobs exist in treating wood?" Bob asked.

"Besides the truck drivers and machine operators, we do some fabricating here. We have engineers who design plant layout as well as uses for the treated wood. And we are always doing research for new uses and better ways of treating. Did you know there are more than 500 plants for treating wood in the United States?" Mr. Kirk asked.

"Are they all this size?" Bob asked.

"No. This is about average. The smallest would need 25 employees and the larger ones would have 200 workers. We have 75 on our payroll," Mr. Kirk said.

"We really must get back to the house," Mr. Brown told Bob.

As they drove back to the lake and the construction site, Bob told Mr. Brown he had learned about treating paper for water resistance when he toured the paper

mill. "But I really hadn't thought much about treating wood. It's logical when you think about it," he continued.

"The treated paper is used mostly for outdoor sign advertising," Bob said. "They do make a paper called crezon that is a fiber overlay for plywood. Do you suppose it has some of the same chemicals used for the creosote treatment?" Bob asked.

"I wouldn't know," Mr. Brown said. "You know as much about treating wood now as I do. I never really toured an operation like that. I must remember to recommend to other customers that they use treated wood."